

New species of *Gossia* N.Snow & Guymer and *Rhodomyrtus* (DC.) Hassk. (Myrtaceae) from Papua New Guinea

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Summary

Snow, N. (2006). New species of *Gossia* N.Snow & Guymer and *Rhodomyrtus* (DC.) Hassk. (Myrtaceae) from Papua New Guinea. *Austrobaileya* 7(2): 325–340. Two new species each of *Gossia* N.Snow & Guymer (*G. scottiana* N.Snow, *G. longipetiolata* N.Snow) and *Rhodomyrtus* (DC.) Hassk. (*R. kaweaensis* N.Snow, *R. mengenenensis* N.Snow) in the myrtle family (Myrtaceae) are described from Papua New Guinea. All four species are known only from the type collections. Each species is considered “Data Deficient” following IUCN guidelines, and all are probably narrowly distributed. The new species of *Gossia* bring to six the number of species in this genus now known from the island of New Guinea. The newly described species in *Rhodomyrtus*, along with another undescribed species in preparation from Papua New Guinea, suggest that ten species of *Rhodomyrtus* occur on New Guinea. The new species of *Rhodomyrtus* have brochidodromous nervation, relatively long petioles, and narrowly elliptic to elliptic leaves. Included are photographs of the type specimens, a distribution map of the new species, separate keys to species of *Gossia* and *Rhodomyrtus* from Malesia, and a discussion of the biogeography of *Gossia* and *Rhodomyrtus*.

Key Words: Myrtaceae, Myrtineae, *Gossia longipetiolata*, *Gossia scottiana*, *Rhodomyrtus kaweaensis*, *Rhodomyrtus mengenenensis*, new species, Malesian flora, Papua New Guinean flora, New Guinean flora, Australasian flora, biogeography, conservation, identification keys, Archbold Expeditions

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Introduction

During the examination of previously undetermined material of Myrtaceae on loan to the author for several revisionary projects and a graduate thesis (Csizmadi 2006) two specimens each of *Gossia* N.Snow & Guymer and *Rhodomyrtus* (DC.) Hassk. from Papua New Guinea could not be assigned to known species. In light of the recent revision of *Gossia* from Australia (Snow *et al.* 2003), the transfer of several Malesian species of *Myrtus* L. and *Austromyrtus* (Nied.) Burret into *Gossia* (Snow 2005), and the author’s nearly completed treatment of *Gossia* for New Caledonia (Snow in prep.), it became clear that the two species of *Gossia* represented undescribed taxa. Because the new species of *Rhodomyrtus* described herein were recognized as such relatively late during preparation of the thesis (Csizmadi 2006), they are described here.

Materials and methods

Each of the newly described species was recognized as being distinct only after comparison against specimens representing all known taxa in their respective genera. Additional duplicates of *Gossia* were searched for by the author in some herbaria, and he was assisted by colleagues in several other herbaria (see Acknowledgements) who kindly searched for more duplicate material of the new species of *Rhodomyrtus*. Each of the new species is diagnosably distinct from congeners following species concepts and species criteria outlined previously (Snow 1997; Snow *et al.* 2003). The descriptive information provided for each species varies somewhat given the limited material available for study and because differing amounts of information are contained on the labels of the specimens themselves.

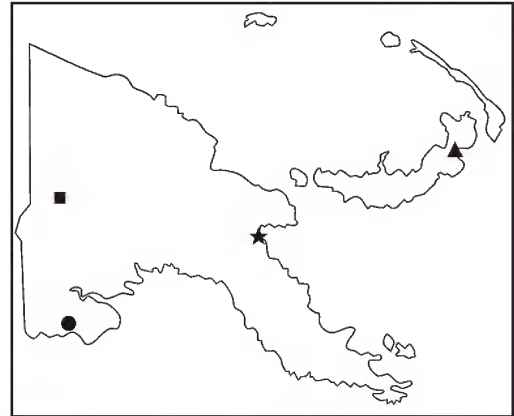
Taxonomy

Gossia scottiana N.Snow, **species nov.**
similis *G. longipetiolatae* a qua floribus 5-merous, petiolis brevioribus, laminiis foliorum

sine glandibus manifestis, et nervo medio adaxiali prominente differt. **Typus:** Papua New Guinea. WESTERN PROVINCE: Fly River, 528 mile camp, May 1936, *L.J.Brass 6766* (holo: L [photo, GREE]; iso: A, BRI, CANB). Tall slender trees, to unknown height. Bark smooth, thin, bright brown with hard brown wood beneath. Branchlets rounded, brownish-grey, smooth or somewhat flaking, glabrous, lacking evident oil glands. Leaves opposite, coriaceous, entire, concolorous, matt above and below. Stipular hairs ([Snow *et al.* 2003: 6–7], “acicular appendages” of some authors [e.g., Holst 2002]) not evident. Petioles 2–4.5 mm long, flat above. Leaf venation pinnate; blades elliptic, 65–125 × 30–45 mm, base rounded to cuneate, apex acuminate; adaxial and abaxial surfaces glabrous and lacking evident oil glands; adaxial midvein flush to somewhat raised; secondary and intramarginal veins indistinct to prominent. Flowers solitary, terminal, antheridia and metaxephylls absent (see Briggs & Johnson [1979] for specialized terminology regarding inflorescences), other features unknown. Peduncles rigid, 4.5–17 mm long, glabrous. Bracteoles and flowers unknown. Hypanthium in fruit densely covered with small glands; sepal lobes 5, glabrous, 1.5–2 mm long, apex broadly rounded, persistent and erect in fruit. Fruits, globose, 10–12 mm long (dry; the label indicating “up to 1.7 cm” when presumably fresh), black (dried). Seeds rounded, testa hard, embryo circinnate. **Figs. 1 & 2.**

Presently known only from the type collection.

Distribution and habitat: The Fly River 528 camp of the Archbold Expedition, the location of the type collection, was located far inland near Macrossan Island at a point where the Fly River makes a sharp bend (Rand & Brass 1940). From an accompanying map in Rand & Brass (1940), it appears the camp was about 15 air-kilometres southwest of Palmer Junction Camp, which is in the Western Province of Papua New Guinea. This general region is downstream from where the Fly River meets the Palmer River at approximately *c.* 6°S and 141.5°E (**Map 1**; F.Lohrer, pers. comm. 2005). The local topography is hilly (Rand & Brass 1940), the specimen label indicating



Map 1. Distribution of *Gossia scottiana* ■, *G. longipetiolata* ●, *Rhodomyrtus kaweaensis* ▲, and *R. mengensis* ★.

the species was growing at 80 m elevation in rainforest. Rand & Brass (1940: 368) report the ridges of this area as having reddish clay soils containing rounded or angular pebbles of quartz. The general vegetation of the area consisted of a very tall rainforest heavy with epiphytes (Rand & Brass 1940). Additional details regarding the vegetation are presented in Brass (1938).

Phenology: Flowering and fruiting in May, but likely fruiting well into June given that young fruits occur on some of the duplicates. For example, the specimen at BRI has just finished flowering and has young fruits.

Diagnostic attributes: Leaves elliptic; oil glands on blades not visible on dried material; adaxial midvein of leaf raised; secondary and tertiary veins of leaf prominent above and below; flowers 5-merous.

Affinities: Among species of the genus from New Guinea and on the basis of leaf morphology *Gossia scottiana* most resembles *G. longipetiolata*. However, *G. scottiana* has much shorter petioles, lacks evident oil glands on the leaf, and has pronounced secondary and tertiary veins on both laminar surfaces. Among Australian species the gross morphology of *G. scottiana* somewhat resembles *G. grayi* N.Snow & Guymer (Snow *et al.* 2003). However, *G. scottiana* has 5-merous flowers, a slightly raised midrib on the adaxial leaf surface and leaf surfaces lacking



Fig. 1. Holotype specimen of *Gossia scottiana* (L.J.Brass 6766 [L]).

evident oil glands. In addition, *G. grayi* lacks the raised secondary and tertiary veins on the leaves. *G. scottiana* also resembles to some degree the widespread Australian species *G. bidwillii* (Benth.) N.Snow & Guymmer, but

the latter has a more deeply channeled petiole, moderately to densely glandular leaves, and lacks the pronounced attenuated leaf apex of *G. scottiana*. The description from the type specimen label indicates “with conspicuous



Fig. 2. Close up of fruits on holotype of *Gossia scottiana*.

bright brown, v[ery] thin bark and hard brown wood”, suggesting the species may be related to members of the genus from Australia known commonly as the “python barks” (Snow *et al.* 2003), such as *G. bidwillii* and *G. acmenoides* (F.Muell.) N.Snow & Guymer.

Notes: The placement of this taxon in *Gossia* is supported in part by a detailed pencil illustration of a circinate embryo on the isotype from A, which appears just to the left of the collection label. Presumably drawn by Merrill, the drawing reflects the coiled embryo that in part diagnoses *Gossia* from related genera (Snow *et al.* 2003). The hard testa of seeds in the fragment packet and other aspects of the fruit confirm its placement in *Gossia*. This same specimen evidently was seen and cited by Landrum (1988: 121; misspelled therein as *Bass* rather than *Brass*) while discussing embryo types as part of a revision of the neotropical genus *Myrteola* O.Berg. Additional material is needed to more fully characterize the inflorescence, bracteoles, flowers (which are unknown) and fruit.

Etymology: The specific epithet honours Dr. Andrew John Scott (1950–) for his important contributions to our understanding of the berry-fruited genera of Myrtaceae (pro parte, Scott 1978a,b, 1979a,b, 1980a,b, 1984, 1985, 1990).

***Gossia longipetiolata* N.Snow, species nov.** floribus 4-meris; petiolis 7–10 mm longis; laminis foliorum glandibus densis in quoque pagina, nervo medio adaxiali plano. **Typus:** Papua New Guinea: WESTERN PROVINCE: Tarara, Wassi Kussa River, December 1936, L.J.Brass 8588 (holo: L [photo, GREE]; iso: A, n.v.; BO, n.v., BRI, CANB).

Slender trees 4–5 m tall. Bark smooth, thin, brown to grey. Branchlets rounded, light brown, smooth to slightly flaky, glabrous, oil glands common but indistinct. Leaves coriaceous, venation pinnate. Stipules not evident. Petioles 7–10 mm long, somewhat channeled above. Leaf blades elliptic, 75–120 × 33–55 mm, base cuneate, apex acute to acuminate. Adaxial and abaxial leaf surfaces matt, glabrous, with dense covering of oil

glands. Adaxial midvein flush. Secondary and intramarginal veins of abaxial surface indistinct to more or less prominent. Inflorescence terminal or lateral, monads or few-flowered racemes, solitary or paired in leaf axils. Anthopodia and metaxyphylls lacking. Peduncles rigid, 4–18 mm long, glabrous. Bracteoles two, linear, scale-like (lacking midrib), 0.5–1 mm long, < 0.5 mm wide, glabrous, persistent or (mostly) deciduous

in fruit. Flowering material unknown. Hypanthium in fruits 4-merous, 1–1.5 mm long, upper surface sparsely sericeous, lower surface glabrous, held more or less erect in fruit. Fruits subglobose to globose, rounded at base, 5–8 × 5–8 mm, glabrous, dark blue-black at maturity. **Figs. 3 & 4.**

Known only from the type collection.



Fig. 3. Holotype specimen of *Gossia longipetiolata* (L.J.Brass 8588 [L]).

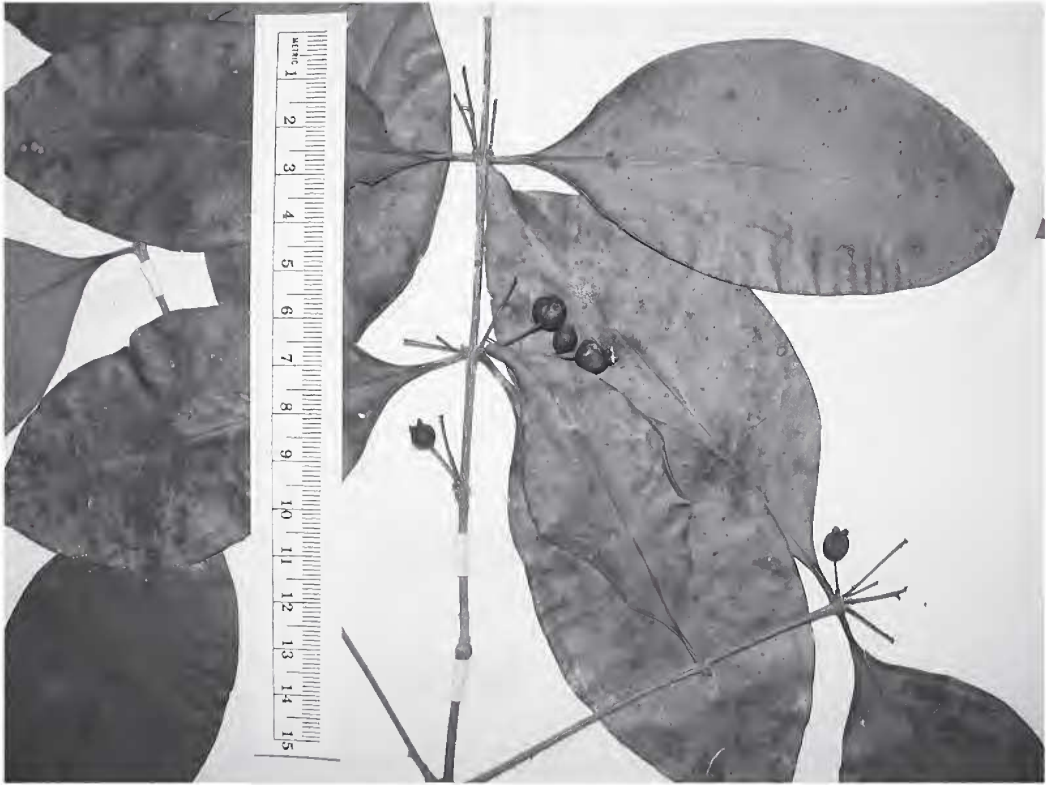


Fig. 4. Close up of fruits on holotype of *Gossia longipetiolata*.

Distribution and habitat: The type locality (**Map 1**) occurs on the coastal lowlands of the Arafura Sea at the old village of Tarara on the Wassi Kusa River (Rand & Brass 1940: 355). Brass (1938) reports that Tarara is located about 55 km (35 miles) from the mouth of the river and indicates that the region (at the time) supported small communities of semi-nomadic agricultural residents. This general area forms the western boundary of Strachan Island at approximately 9°S, 142°E, (F.Lohrer, pers. comm. 2005). Brass (1938) indicates the country consists of a plain with low ridges that gradually increases in elevation further inland. The climate of the area is said to be markedly seasonal with the majority of rain occurring from December to April (Rand & Brass 1940). The area is underlain by limestone and mostly covered with savanna, but rainforest occurs along waterways in thin strips (Brass 1938; Rand & Brass 1940). The specimen label indicates the species as being common in the underbrush of light rainforests.

Phenology: Known in mature fruit from December; presumably flowering approximately 4–6 weeks earlier.

Diagnostic attributes: Petioles 7–10 mm long; oil glands dense on both leaf surfaces; adaxial midvein of leaf flush; secondary veins of leaves visible but not raised on adaxial surface; flowers 4-merous.

Affinities: Among species of *Gossia* from the island of New Guinea the leaf morphology most resembles *G. scottiana*, but the dense oil glands of *G. longipetiolata* and longer petioles immediately distinguish it from the former. Using the “key for sterile specimens” for Australian species (Snow *et al.* 2003: 34–35), *G. longipetiolata* would key out with *G. bidwillii*, but it differs from that species by its longer petioles and acuminate leaf apices. More details are needed about the flower and inflorescence structure of *G. longipetiolata* and a molecular-based study of the genus will be necessary before the closest relatives of this species can be inferred.

Notes: The label indicates that the bark is “very smooth, thin”, suggesting this species, as with *Gossia scottiana*, might be related to the “python” group of species in this genus (Snow *et al.* 2003).

Etymology: The specific epithet refers to the long petioles, which with an average length of about 8 mm are the longest within *Gossia*.

Conservation status: Given its occurrence in only one known locality and following IUCN (2001) guidelines the appropriate designation is “Data Deficient” unless additional populations are found. The following key separates species of *Gossia* presently known from Malesia.

A key to the Malesian species of *Gossia*

- 1 Flowers 5-merous (rarely 4-merous in *G. floribunda*); leaf apex acuminate to attenuate 2
Flowers 4-merous; leaf apex obtuse, acute, or acuminate 3
- 2 Leaf blades mostly < 55 mm long; hypanthium sericeous; ovary apex villous **G. eugenioides**
Leaf blades mostly > 75 mm long; hypanthium glabrous; ovary apex glabrous **G. scottiana**
- 3 Branchlets 4-angled 4
Branchlets rounded to compressed 5
- 4 Leaves broadly elliptic, 12–28 mm long; hypanthium densely appressed-pubescent; stipular hairs (see Snow *et al.* 2003) prominent, much elongated apically **G. versteeghii**
Leaves narrowly elliptic to ovate, 15–75 mm long; hypanthium glabrous to sparsely sericeous; stipular hairs somewhat obscure, only somewhat elongate apically **G. floribunda**
- 5 Short, spine-like bracts in inflorescence present **G. salomonensis**
Short, spine-like bracts in inflorescence absent 6
- 6 Leaves membranous, narrowly elliptic **G. randiana**
Leaves coriaceous, elliptic to ovate 7
- 7 Petioles 7–10 mm long; leaf apex acuminate **G. longipetiolata**
Petioles 2–4 mm long; leaf apex acute **G. ancityensis**

Rhodomyrtus kaweaensis N.Snow, **species nov.** a *R. pinnatinervi* C.T.White foliis pagina abaxiali sericea et apice acuto usque acuminato, et pedunculis tenuioribus differt. **Typus:** Papua New Guinea: MOROBE PROVINCE: Lae Subdistrict, Mt. Kawea, 600 m, 7 July 1973, *D.B.Foreman LAE 52304* (holo: BISH; iso: CANB, BRI, K, US).

Slender trees to 4.5 metres, up to 3 cm d.b.h. Outer bark medium brown, smooth to flaky; inner bark rich brown; wood straw-coloured. Younger branchlets with two shallow longitudinal channels on each side of

laterally compressed internodes, sericeous. Petioles 9–11 mm long, deeply channeled on upper surface, longitudinally striated when young, densely sericeous. Stipular hairs of two to several ferruginous to dark red hairs up to 0.8 mm long. Leaves discolorous, matt above and below. Leaf blades narrowly elliptic, 55–100 × 17–27 mm, base cuneate to attenuate, apex acute to acuminate, margin flat; upper surface pannose while developing but becoming glabrous, oil glands not visible, midvein impressed throughout; lower surface moderately short-hairy throughout (use

magnification), oil glands common but faint, intramarginal vein lacking. Inflorescence terminal or ramiflorous, of solitary flowers; anthopodia and metaxyphylls absent. Peduncles 3–10 mm, densely short-sericeous. Bracteoles 2, ovate, 2.2–2.3 × 0.8–1.0 mm, tightly appressed to base of hypanthium, thickened and keeled abaxially, sericeous to densely tomentose. Hypanthium obconic, 3.5–

4.5 mm, hypanthium tube not extended above ovary apex, densely sericeous-tomentose; ovary apex hairy. Calyx lobes 5, fused below, distinct in bud, c. 2.5 mm, light green, ovate to oblate, apex obtuse; upper surface densely sericeous, lower surface moderately to densely sericeous-tomentose. Petals ovate to obovate, 5–8 × 3–4.2 mm, white, glabrous above and below, oil glands common and relatively



Fig. 5. Holotype specimen of *Rhodomyrtus kawaeensis* (D.B. Foreman LAE 52304 [BISH]).

prominent. Stamens 130–150, multiseriate, excluded, yellow; filaments 3–4 mm, pink; anthers subglobose, basifixed, *c.* 0.5 mm; connectives with a single apical gland and 1–6 additional glands between anther sacs; staminal disk shortly villous, diameter *c.* 2.5 mm. Style *c.* 5 mm, glabrous, capitate. Locules (in flower) 6, placenta one per locule, axile; ovules numerous. Fruit unknown. **Figs. 5 & 6.**

Presently known only from the type collection.

Distribution and habitat: At the present time *Rhodomyrtus kaweaensis* is known only from forests on ridges at *c.* 600 metres altitude on Mt. Kawea in Morobe Province west of the Huon Gulf, about 80 air km south-southeast of Lae (**Map 1**).

Phenology: Flowering in January, presumably fruiting in late January through much of February or longer.

Diagnostic attributes: Internodes of flowering branchlets 2–7 mm long; leaves brochidodromous, narrowly elliptic; hypanthium irregularly creased longitudinally, densely sericeous-tomentose; petals sparsely hairy abaxially, densely sericeous adaxially; stigma peltate.

Affinities: *Rhodomyrtus pinnatinervi* C.T.White is relatively common in New Guinea and differs from *R. kaweaensis* by its narrower leaves, acuminate (versus typically acute) leaf apex, less hairy abaxial leaf surface, completely glabrous petals, and glabrous styles lacking glands. On the basis of the shape and venation of leaves *R. mengensis* also resembles *R. kaweaensis*, but the latter is easily diagnosed by its shorter (2–7 mm) internodes at the tips of branches.

Notes: According to the label the leaves are light green, but in dried material they are dark brown (above) to light brown (below). The flowers are said to lack a scent.

Etymology: The specific epithet is in reference to the type locality of Mt. Kawea.

Conservation status: Since analyses have not been carried out to better document the range

of the species the IUCN (2001) guidelines require a designation of “Data Deficient”.

Rhodomyrtus mengensis N.Snow, **species nov.** a *R. pinnatinervi* C.T.White indumento sericeo, et ramulis compressis et in quoque latere bicanaliculato differt. **Typus:** Papua New Guinea. EAST NEW BRITAIN: Subdistrict Pomio, near mapping site at edge of Megen Massif, 1200 m, 5°04'S, 151°48'E, 10 June 1973, *P.F. Stevens & Y. Lelean LAE58784* (holo: BRI; iso: A, CANB, E, K).

Slender trees to 4.5 metres tall, *c.* 3 cm dbh. Outer bark medium brown, flaky; inner bark darker brown; wood straw-coloured. Branchlets laterally compressed, those of the current year's growth with two longitudinal grooves on each side of the stem, moderately to densely sericeous. Petioles 10–16 mm long, deeply channeled on adaxial surface, densely short-sericeous. Leaves discolorous, matt above and below. Leaf blades narrowly elliptic, 75–100 × 22–30 mm, base cuneate to attenuate, apex acuminate, margin flat; adaxial surface sericeous-lanate adaxially when young, becoming glabrous (remaining sericeous around midvein), oil glands not visible, midvein deeply impressed; abaxial surface sparsely to moderately short-sericeous, especially along midvein and veins; oil glands sparse to moderate (best seen with magnification), secondary veins distinct, intramarginal vein lacking. Inflorescence terminal, axillary, or on naked branches, flowers solitary. Anthopodium and metaxyphylls lacking. Peduncles solitary, 9–11 mm, densely sericeous, typically reflexed away from stem (in fruit). Bracteoles 2, ovate, relatively thick and somewhat conduplicate at base, *c.* 2 mm × 1 mm, rigid and tightly appressed to base of hypanthium, sericeous-tomentose, persistent in fruit. Calyx lobes 5, fused below, broadly rounded, apex obtuse, 1.5–2 mm long, ascending in fruit; adaxial surface somewhat hairy; abaxial surface densely short-tomentose. Petals 3–4 mm long; glabrous above and below, oil glands common and relatively large. Stamens multiseriate; filaments *c.* 3 mm long; anthers subcylindrical, *c.* 0.6 mm long; staminal disk hairy. Styles glabrous; ovary apex hairy. Immature fruit a berry, globose, 5–6 ×



Fig. 6. Close up of flowers of holotype specimen of *Rhodomyrtus kaweensis* (D.B.Foreman LAE 52304 [BISH]).

5–6 mm, shortly sericeous-tomentose, dull orange. Locules 6; placentation axile. Seeds numerous, ovate, testa hard. Embryo slightly curved to c-shaped. **Figs. 7 & 8.**

Presently known only from the type collection.

Distribution and habitat: *Rhodomyrtus mungenensis* is presently known only in Papua New Guinea from East New Britain on the edge of the Mengen Massif west of Wide Bay (**Map 1**); growing at 1200 metres in *Nothofagus*-dominated mossy forests with *Nastus* Juss.

Phenology: Probably flowering at least May and June and fruiting June at least into July.

Diagnostic attributes: Younger branchlets with two longitudinal grooves on each side of the somewhat compressed internode; leaves narrowly elliptic, venation brochidodromous; fruits reflexed from stem.

Affinities: The combination of narrowly elliptic leaves with brochidodromous venation most closely resembles *R. kaweensis*, which is restricted to the main island of New Guinea.

Notes: The label from the type specimen reports the leaves as being slightly shiny above when fresh. The fruits are reportedly dull orange in color, although it is unlikely that they are fully developed.

Etymology: The specific epithet refers to the type collection from the Mengen Massif.

Conservation status: IUCN (2001) guidelines require a designation of “Data Deficient”.

General discussion

Rhodomyrtus sensu lato is demonstrably polyphyletic based on data from DNA sequences and morphological differences in leaf venation and aspects of the flower (Csizmadia 2006). For example, cladograms

based on maximum likelihood and parsimony analyses of DNA sequence data grouped species of *Rhodomyrtus* that possess brochidodromous venation into a clade distinct from the species having acrodromous venation, which were in a second clade (Csizmadi 2006). The work of Csizmadi (2006) included two or more representative species of the putatively related genera *Octamyrtus* Diels, *Archirhodomyrtus* (Nied.) Burret, *Decaspermum* J.R.Forst. & G.Forst., *Pilidiostigma* Burret, and an undescribed

new genus from New Caledonia (Snow 2004). Representatives from each of these genera were present in at least one of the two clades comprised largely of species of *Rhodomyrtus*. Neither of the new species described here of *Rhodomyrtus* were sampled by Csizmadi (2006), but on the basis of leaf venation and certain aspects of floral morphology, they probably would fall out with other species in the brochidodromous clade.

Key to species of *Rhodomyrtus* outside of Australia

- | | | |
|----|---|--|
| 1 | Leaf venation acrodromous (trinerved) | 2 |
| | Leaf venation brochidodromous (pinnate) | 7 |
| 2 | Calyx lobes narrowly triangular | R. sp. nov. Csizmadi & N.Snow ined. |
| | Calyx lobes ovate or broadly semicircular | 3 |
| 3 | Abaxial leaf surface densely ferruginous villous. | 4 |
| | Abaxial leaf surface glabrous or pubescent, lacking ferruginous hairs | 6 |
| 4 | Mature fruits ellipsoidal | 5 |
| | Mature fruits globular. | R. montana |
| 5 | Abaxial leaf surface moderately to densely villous | R. lanata |
| | Abaxial leaf surface sparsely villous | R. novoguineensis |
| 6 | Mature leaves glabrous abaxially. | R. salomonensis |
| | Mature leaves tomentose abaxially | R. tomentosa |
| 7 | Leaves narrowly elliptic to elliptic | 8 |
| | Leaves ovate, broadly elliptic or obovate | 10 |
| 8 | Branchlets, developing leaves, abaxial leaf midvein, and hypanthium
woolly-tomentose (hairs bright white) | R. pinnatinervis |
| | Branchlets, developing leaves, abaxial leaf midvein, and hypanthium
sericeous or sericeous-tomentose (hairs dull white or somewhat
yellowish) | 9 |
| 9 | Internodes of flowering branchlets 2–7 mm long, without longitudinal
channels | R. kaweensis |
| | Internodes of flowering branchlets 12–22 mm long, bearing two
longitudinal channels on each side | R. mungenensis |
| 10 | Hypanthium smooth in flower | 11 |
| | Hypanthium ribbed or rugulose in flower | 12 |
| 11 | Mature fruit globular; stigma peltate; leaf apex acute or occasionally
acuminate; style glandular | R. pinnatinervis |
| | Mature fruit cylindrical; stigma capitate; leaf apex acuminate; style
eglandular | R. surigaoensis |

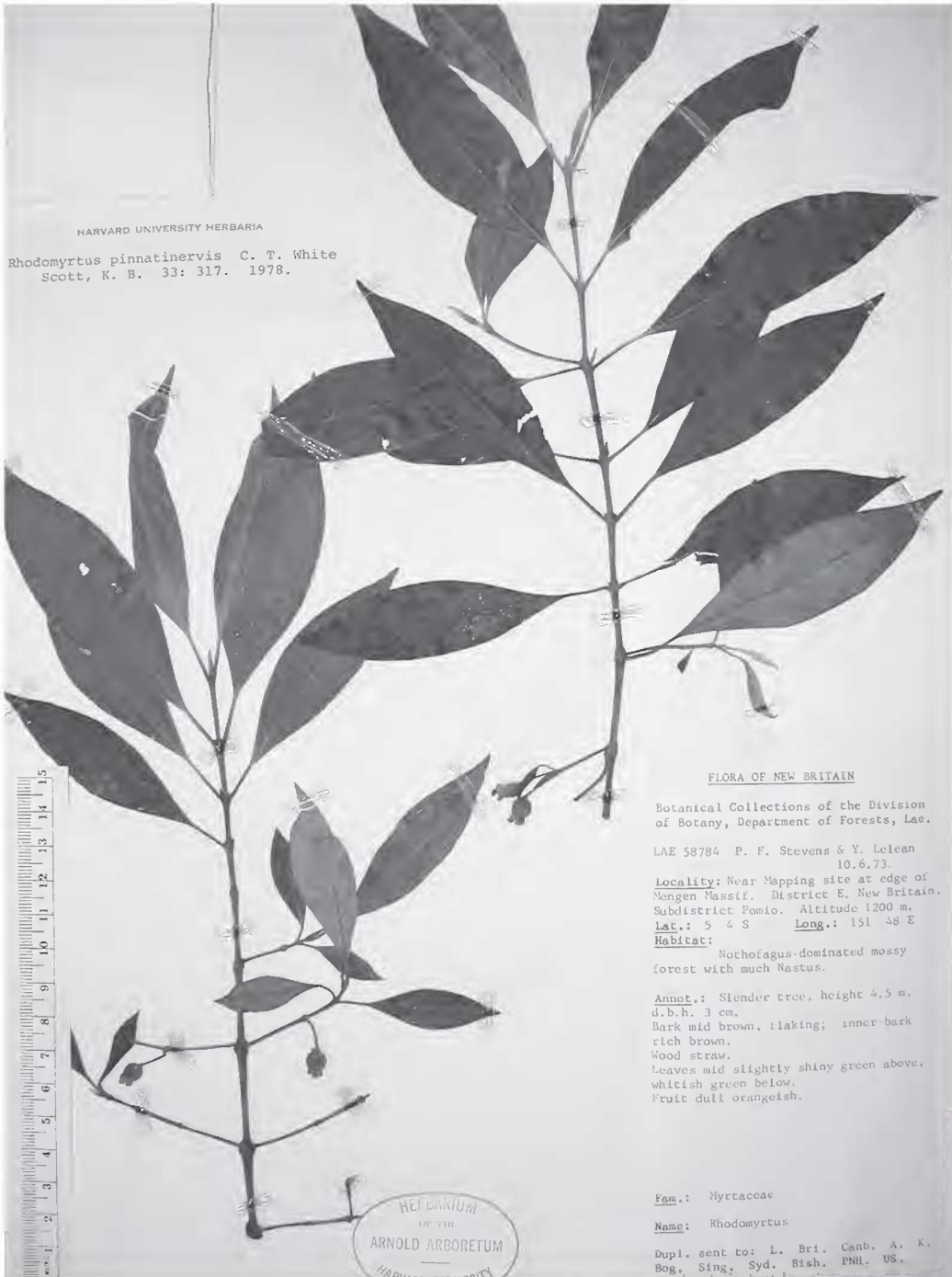


Fig. 7. Holotype specimen of *Rhodomyrtus mungenensis* (P.F.Stevens & Y.Lelean LAE 58784 [A]).

12	Locules 1 or 2	13
	Locules 3 or more	14
13	Locules 1; placentation parietal; stigma peltate	R. macrocarpa
	Locules 2; placentation axile; stigma capitate	R. elegans
14	Leaves oblong or elliptic; inflorescence a simple cyme to a raceme; one row of ovules per locule	R. locellata
	Leaves obovate, leaf apex rounded	R. obovata

Based on the two new species reported here, and revisionary work in progress for species from New Caledonian (Snow in prep.), it now appears that *Gossia* consists of approximately 45 species (Snow *et al.* 2003; Snow 2005). This figure exceeds a recent previous estimate of 35 species (Snow 2000a) and suggests that *Gossia* may be the most species-rich genus of berry-fruited genera traditionally placed in subtribe Myrtineae in Australasia (Snow 2000a; see Landrum & Kawasaki (1997) for estimates of species richness among neotropical berry-fruited genera). The two species described here bring to six the number of species of *Gossia* known from the island of New Guinea (**Table 1**). Based on current knowledge it appears that eastern Australia and New Caledonia each have 20 species of *Gossia* (Snow *et al.* 2003, in prep.). None of the species are shared between Australia and New Caledonia, although *G. floribunda* occurs in both Australia and New Guinea (**Table 1**). Vanuatu and the Solomon Islands each have a single species of *Gossia* (**Table 1**; Snow *et al.* 2003, Snow 2005, in prep.). The geographical distribution of *Gossia* now can be stated with some certainty as occupying the Eastern Australian, New Caledonian, Malesian, and Fijian floristic provinces of Takhtajan (1986), which provides the necessary context to include *Gossia* in more general biogeographical studies in this geologically complex region.

The two new species of *Gossia* described here join others in Myrtaceae also described from the 1936–37 Archbold Expeditions, including the following taxa newly described by White (1942, 1951): the genera *Basisperma* and *Eucalyptopsis*; the species *Mearnsia* [= *Metrosideros*] *scandens*, *Octamyrtus lanceolatus*, *Rhodomyrtus obovata*,

Rhodamnia propinqua, *Tristania ferruginea*, and the variety *Melaleuca cunninghamii* Schauer var. *glabra*.

In light of a species from Papua New Guinea soon to be described (Csizmadi 2006) and the two new species described herein, the 20 species of *Rhodomyrtus* presently recognized is double that of a recent estimate (Snow 2000a). As mentioned above, however, *Rhodomyrtus* is demonstrably polyphyletic (Csizmadi 2006) and likely will need to be partitioned into two genera. Of the 20 species of *Rhodomyrtus sensu lato*, eleven occur on the island of New Guinea (**Table 1**), although *R. macrocarpa* Benth. has its main distribution in Australia (Scott 1978a; Guymer 1991). Species restricted to areas other than the island of New Guinea are *R. locellata* (Guillaumin) Burret of New Caledonia and *R. tomentosa* (Aiton) Hassk. of southern Asia and much of Malesia. In addition, *R. salomonensis* (C.T.White) A.J.Scott has its main distribution over much of the Solomon Islands (Scott 1978a), with its northeastern-most occurrence being on the island of Bougainville, Papua New Guinea. *Rhodomyrtus* thus occurs in the Indian, Indochinese, Malesian, Northeast Australian, and New Caledonian floristic regions of Takhtajan (1986).

Several berry-fruited species of Myrtaceae occur in northern Australia and southern Papua New Guinea. These include *Gossia floribunda* (A.J.Scott) N.Snow & Guymer (Snow *et al.* 2003), *Rhodomyrtus macrocarpa*, *Rhodamnia spongiosa* (F.M.Bailey) Domin & C.T.White (Snow in press), and *Pilidiostigma papuanum* (Lauterb.) A.J.Scott (Snow 2004). Their occurrence in both countries mirrors a pattern found in other genera (e.g., Brass 1938; Snow 2000b, in press) and likely is explained by southern New Guinea being geologically

Table 1: Geographical distribution of species of *Gossia* and *Rhodomyrtus* occurring outside of Australia and their associated floristic regions following Takhtajan (1986).

Species and authors	Countries (islands in parentheses)	Floristic region
<i>Gossia aneityensis</i> (Guillaumin) N.Snow	Vanuatu (Aneityum)	Fijian
<i>Gossia eugenoides</i> (A.J.Scott) N.Snow	Indonesia (Papua)	Malesian
<i>Gossia floribunda</i> (A.J.Scott) N.Snow & Guyer	Australia, Papua New Guinea	Northeast Australian, Malesian
<i>Gossia kaweansensis</i> N.Snow	Papua New Guinea	Malesian
<i>Gossia longipetiolata</i> N.Snow	Papua New Guinea	Malesian
<i>Gossia mengeniensis</i> N.Snow	Papua New Guinea	Malesian
<i>Gossia randiana</i> (Merr. & L.M.Perry) N.Snow	Papua New Guinea	Malesian
<i>Gossia salomonensis</i> (A.J.Scott) N.Snow	Solomon Islands (Gizon)	Malesian
<i>Gossia scottiana</i> N.Snow	Papua New Guinea	Malesian
<i>Gossia versteeghii</i> (Merr. & L.M.Perry) N.Snow	Indonesia (Papua)	Malesian
<i>Rhodomyrtus elegans</i> (Blume) A.J.Scott	Indonesia (Papua, Moluccas), Papua New Guinea	Malesian
<i>Rhodomyrtus lanata</i> Guyer	Papua New Guinea	Malesian
<i>Rhodomyrtus locellata</i> (Guillaumin) Burret	New Caledonia	New Caledonian
<i>Rhodomyrtus</i> sp. nov. J.Csizmadi & N.Snow ined.	Papua New Guinea	Malesian
<i>Rhodomyrtus macrocarpa</i> Benth.	Australia, Papua New Guinea, Indonesia (Moluccas)	Australia, Malesian
<i>Rhodomyrtus montana</i> Guyer	Papua New Guinea	Malesian
<i>Rhodomyrtus novoguineensis</i> Diels	Indonesia (Moluccas), Papua New Guinea, (East New Britain, Papua)	Malesian
<i>Rhodomyrtus obovata</i> C.T.White	Papua New Guinea (Papua)	Malesian
<i>Rhodomyrtus pinnatinervis</i> C.T.White	Papua New Guinea (Papua), Indonesia (Papua)	Malesian
<i>Rhodomyrtus salomonensis</i> (C.T.White) A.J.Scott	Papua New Guinea, Solomon Islands	Malesian
<i>Rhodomyrtus suriangoensis</i> Elmer	Philippines (Mindanao)	Malesian
<i>Rhodomyrtus tomentosa</i> (Aiton) Hassk.	Southern Asia	Indochinese, Malesian



Fig. 8. Close up of young fruits of holotype specimen of *Rhodomyrtus mengensis* (P.F.Stevens & Y.Lelean LAE 58784 [A]).

a part of the Australian continent with the Torres Strait becoming dry during the last glacial period (BMR Palaeogeographic Group 1990).

It is nothing new to restate the obvious fact that New Guinea and neighboring areas remain biologically among the least explored and poorly known areas on the planet. Reflecting our limited knowledge of the region is the remarkable fact that specimens collected seventy years ago by Leonard Brass during the 1936–37 Archbold Expedition to New Guinea are only now understood to represent species new to science (i.e., *Gossia scottiana* and *G. longipetiolata*). Further details of that particular Archbold Expedition are provided by Brass (1938) and Rand & Brass (1940). Given its tropical location, high levels of biodiversity and endemism, and relatively low levels of general plant collecting in many areas, additional collecting from New Guinea should remain a high priority. To help expand our knowledge of plant biodiversity the author

will gladly accept fertile specimens of berry-fruited Myrtaceae as gifts for determination from this poorly known region.

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